Calendar No. 749

110TH CONGRESS
2D SESSION

S. 1581

[Report No. 110–339]

To establish an interagency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration.

IN THE SENATE OF THE UNITED STATES

JUNE 7, 2007

Mr. LAUTENBERG (for himself, Ms. CANTWELL, Mr. KERRY, Mr. STEVENS, Ms. KLOBUCHAR, Ms. SNOWE, Mr. NELSON of Florida, and Mrs. BOXER) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

MAY 22, 2008

Reported by Mr. INOUYE, with amendments

[Omit the part struck through and insert the part printed in italic]

A BILL

To establish an interagency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Federal Ocean Acidification Research And Monitoring Act of 2007'' or the ''FOARAM Act''.

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

SEC. 2. FINDINGS AND PURPOSES.

(a) FINDINGS.—The Congress finds the following:

(1) The oceans help mitigate the effects of global warming by absorbing atmospheric carbon dioxide. About a third of anthropogenic carbon dioxide is currently absorbed by the ocean.

(2) The rapid increase in atmospheric carbon dioxide is overwhelming the natural ability of the oceans to cope with human-induced carbon dioxide emissions.

~~(3) The emission of carbon dioxide into the atmosphere is causing the oceans to become more acidic. The increase in acidity and changes in ocean chemistry are corrosive to marine shells and organisms that form the base of the food chain for many fish and marine mammals including the skeletons of~~

~~corals which provide one of the richest habitats on earth.~~

(3) The emission of carbon dioxide into the atmosphere is changing surface ocean carbon chemistry and lowering the pH. These changes in ocean chemistry are corrosive to marine shells, and are detrimental to organisms that form the base of the food chain for many fish and marine mammals, and to corals, which provide one of the richest habitats on Earth.

(4) The rich biodiversity of marine *and freshwater* organisms is an important contribution to the national ~~economy~~ *economy,* and the change in ocean chemistry threatens our ~~fisheries and marine environmental quality,~~ *fisheries, marine environmental quality, and tourism,* and could result in significant social and economic costs.

(5) Existing Federal programs support research in related ocean chemistry, but gaps in funding, coordination, and outreach have impeded national progress in addressing ocean acidification.

(6) National investment in a coordinated program of research and monitoring would improve the understanding of ocean acidification effects on whole ecosystems, advance our knowledge of the socio-eco-

nomic impacts of increased ocean acidification, and strengthen the ability of marine resource managers to assess and prepare for the harmful impacts of ocean acidification on our marine resources.

(b) PURPOSES.—The purposes of this Act are to provide for—

(1) development and coordination of a comprehensive interagency plan to monitor and conduct research on the processes and consequences of ocean acidification on marine organisms and ecosystems and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration; ~~and~~

(2) assessment and consideration of regional and national ecosystem and socio-economic impacts of increased ocean acidification, and integration into marine resource ~~decisions.~~ *decisions; and*

(3) research on adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification.

SEC. 3. INTERAGENCY COMMITTEE ON OCEAN ACIDIFICATION.

(a) ESTABLISHMENT.—

~~(1) IN GENERAL.—There is hereby established an Interagency Committee on Ocean Acidification.~~

(1) IN GENERAL.—The President shall establish or designate an interagency committee on ocean acidification.

(2) MEMBERSHIP.—The ~~Committee~~ *committee* shall be comprised of senior representatives from the National Oceanic and Atmospheric Administration, the National Science Foundation, the National Aeronautics and Space Administration, the United States Geological Survey, the United States Fish and Wildlife Service, ~~the Environmental Protection Agency, the Department of Energy,~~ and such other Federal agencies as the ~~Secretary~~ *President* considers appropriate.

(3) CHAIRMAN.—The ~~Committee~~ *committee* shall be chaired by the representative from the National Oceanic and Atmospheric Administration. The chairman may create subcommittees chaired by any member agency of the committee. Working groups may be formed by the full ~~Committee~~ *committee* to address issues that may require more specialized expertise than is provided by existing subcommittees.

(b) PURPOSE.—The ~~Committee~~ *committee* shall oversee the planning, establishment, and ~~coordination~~ *coordinated implementation* of a plan designed to improve the

understanding of the role of increased ocean acidification on marine ecosystems.

(c) REPORTS TO CONGRESS.—

(1) STRATEGIC RESEARCH AND IMPLEMENTATION PLAN.—The ~~Committee~~ *committee* shall submit the strategic research and implementation plan established under section 4 to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Natural Resources.

(2) TRIENNIAL REPORT.—Not later than 2 years after the date of the enactment of this Act and every 3 years thereafter, the ~~Committee~~ *committee* shall transmit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Natural Resources that includes—

(A) a summary of federally funded ocean acidification research and monitoring activities, including the budget for each of these activities; and

(B) an analysis of the progress made toward achieving the goals and priorities for the interagency research plan developed by the ~~Committee~~ *committee* under section 4 and rec-

ommendations for future ~~activities.~~ *activities, including policy recommendations developed as part of this research.*

SEC. 4. STRATEGIC RESEARCH AND IMPLEMENTATION PLAN.

(a) IN GENERAL.—Within ~~1 year~~ *18 months* after the date of enactment of this Act, the ~~Committee~~ *committee* shall develop a strategic research and implementation plan for coordinated Federal activities. In developing the plan, the ~~Committee~~ *committee* shall consider ~~and use~~ reports and studies conducted by Federal agencies and departments, the National Research Council, the Ocean Research and Resources Advisory Panel, ~~the Joint Subcommittee on Ocean, Science, and Technology of the National Science and Technology Council, the Joint Ocean Commission Initiative,~~ and other expert scientific ~~bodies.~~ *bodies and coordinate with other relevant Federal interagency committees.*

(b) SCOPE.—The plan shall—

(1) provide for interdisciplinary research among the ocean sciences, and coordinated research and activities to improve understanding of ocean acidification that will affect marine ecosystems and to assess the potential and realized socio-economic impact of ocean acidification, including—

(A) effects of atmospheric carbon dioxide on ocean chemistry;

(B) biological impacts of ocean acidification, including research on—

~~(i) commercially and recreationally important species and ecologically important calcifiers that lie at the base of the food chain; and~~

(i) species, including commercially and recreationally important species, protected, endangered, or threatened species, and ecologically important calcifiers that lie at the base of the food chain; and

(ii) physiological changes in response to ocean acidification;

~~(C) identification and assessment of ecosystems most at risk from projected changes in ocean chemistry including—~~

~~(i) coral reef ecosystems;~~

~~(ii) polar ecosystems; and~~

~~(iii) coastal ocean ecosystems;~~

~~(D) modeling the effects of pH including ecosystem forecasting;~~

(C) identification and assessment of ecosystems most at risk from projected changes in ocean chemistry, including—

(i) coastal ecosystems, including Great Lakes ecosystems;

(ii) coral reef ecosystems, including deep sea coral ecosystems; and

(iii) polar and subpolar ecosystems;

(D) modeling the changes in ocean chemistry driven by the increases in ocean carbon levels, including ecosystem forecasting;

(E) identifying feedback mechanisms resulting from the ocean chemistry changes ~~and the subsequent~~ *such as the* decrease in calcification rates in organisms;

(F) socio-economic impacts of ocean acidification, including commercially and recreationally important ~~fisheries;~~ *fisheries and coral reef communities; and*

(G) identifying interactions between ocean acidification and other oceanic changes including those associated with climate change;

(2) establish, for the 10-year period beginning in the year it is submitted, goals, priorities, and guidelines for coordinated activities that will—

(A) most effectively advance scientific understanding of the characteristics and impacts of ocean acidification;

(B) provide forecasts of changes in ocean acidification and the consequent impacts on marine ecosystems; and

(C) provide a basis for policy decisions to reduce and manage ocean acidification and its environmental impacts;

(3) provide an estimate of Federal funding requirements for research and monitoring activities; and

(4) identify and strengthen relevant programs and activities of the Federal agencies and departments that would contribute to accomplishing the goals of the plan and prevent unnecessary duplication of efforts, including making recommendations for the use of observing systems and technological research and development.

(c) CONSULTATION.—In developing the plan, the committee may consult with the academic community, States, industry, environmental groups, and other relevant stakeholders.

SEC. 5. NOAA OCEAN ACIDIFICATION PROGRAM.

(a) IN GENERAL.—The Secretary shall establish and maintain an ocean acidification program within the National Oceanic and Atmospheric Administration to implement activities consistent with the strategic research and implementation plan developed by the ~~Committee~~ *committee* under section 4 that—

(1) includes—

(A) interdisciplinary research among the ocean *and atmospheric* sciences, and coordinated research and activities to improve understanding of ocean acidification;

(B) the establishment of a long-term monitoring program of ~~pH levels in the ocean~~ *ocean acidification* utilizing existing global ocean observing assets and adding instrumentation and sampling stations as appropriate to the aims of the research program;

(C) research to identify and develop adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification;

~~(C)~~ *(D)* educational opportunities that encourage an interdisciplinary and international approach to exploring the impacts of ocean acidification;

~~(D)~~ *(E)* national public outreach activities to improve the understanding of ocean acidification and its impacts on marine resources; and

~~(E)~~ *(F)* coordination of ocean acidification *research and* monitoring ~~and impacts research~~ with other appropriate international ocean science bodies such as the International Oceanographic Commission, the International Council for the Exploration of the Sea, the North Pacific ~~Marine Science Organization,~~ *Research Board,* and others;

(2) provides grants for critical research projects that explore the effects of ocean acidification on ecosystems and the socio-economic impacts of increased ocean acidification that are relevant to the goals and priorities of the strategic research plan; and

(3) incorporates a competitive merit-based grant process that may be conducted jointly with other participating agencies or under the National Oceanographic Partnership Program under section 7901 of title 10, United States Code.

(b) ADDITIONAL AUTHORITY.—In conducting the Program, the Secretary may enter into and perform such contracts, leases, grants, or cooperative agreements as

may be necessary to carry out the purposes of this Act on such terms as the Secretary deems appropriate.

SEC. 6. DEFINITIONS.

In this Act:

~~(1) COMMITTEE.—The term "Committee" means the Interagency Committee on Ocean Acidification established by section 3(a).~~

~~(2) OCEAN ACIDIFICATION.—The term "ocean acidification" means the decrease in the pH of the Earth's oceans caused by the uptake of anthropogenic carbon dioxide from the atmosphere.~~

(1) COMMITTEE.—The term "committee" means the interagency committee on ocean acidification established or designated by the President under section 3(a)(1).

(2) OCEAN ACIDIFICATION.—The term "ocean acidification" means the change in ocean chemistry that is driven by the increase in ocean carbon levels, and the uptake of chemical inputs from the atmosphere, including anthropogenic carbon dioxide.

(3) PROGRAM.—The term "Program" means the National Oceanic and Atmospheric Administration Ocean Acidification Program established under section 5.

(4) SECRETARY.—The term ''Secretary'' means the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

~~(a) IN GENERAL.—There are authorized to be appropriated to the National Oceanic and Atmospheric Administration $30,000,000 to carry out the purposes of this Act for each of fiscal years 2008 through 2012, and such sums as may be necessary for fiscal years after fiscal year 2012.~~

~~(b) ALLOCATION.—~~

~~(1) Of the amounts made available to carry out this Act for a fiscal year, the Secretary shall allocate at least 60 percent to other departments and agencies to carry out the priorities of the plan developed by the Committee.~~

(a) IN GENERAL.—There are authorized to be appropriated to the National Oceanic and Atmospheric Administration to carry out this Act—

(1) $10,000,000 for fiscal year 2009;

(2) $15,000,000 for fiscal year 2010;

(3) $20,000,000 for fiscal year 2011;

(4) $25,000,000 for fiscal year 2012; and

(5) $30,000,000 for fiscal year 2013.

(b) ALLOCATION.—Of the amounts appropriated to the National Oceanic and Atmospheric Administration under subsection (a) for each fiscal year—

(1) 40 percent shall be available to, and retained by, the National Oceanic and Atmospheric Administration for use in carrying out its responsibilities under this Act; and

(2) 60 percent shall be transferred by the National Oceanic and Atmospheric Administration in equal amounts to—

(A) the National Science Foundation;

(B) the National Aeronautics and Space Administration;

(C) the United States Geological Survey; and

(D) the United States Fish and Wildlife Service.

~~(2)~~ *(3)* Of the amounts made available to carry out this Act for any fiscal year, the Secretary, and other departments and agencies to which amounts are ~~allocated under paragraph (1),~~ *transferred under paragraph (2),* shall allocate at least 50 percent for competitive grants.

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